

Chevron USA

Piceance

SKR-598-36-BV (New)

SKR-598-36-BV-01 - Slot 1

598-36-13

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

30 January, 2009

Well Coordinates (NAD83): 1,643,889.95 N, 2,197,610.45 E (39° 34' 00.30" N, 108° 20' 47.97" W)

Ground Level: 6,032.60 ft

Local Coordinate Origin: Centered on Well SKR-598-36-BV-01 (Slot 1) - Slot S

Viewing Datum: RFE @ 6057.6ft (Original Well Elev)

TVDs to System: N

North Reference: Grid

Unit System: API - US Survey Feet

Version: 2003.16 Build: 431

HALLIBURTON

Project: Piceance
Site: SKR-598-36-BV (New)
Well: SKR-598-36-BV-01
Wellbore: 598-36-13
Plan: Actual Field Surveys

Chevron USA

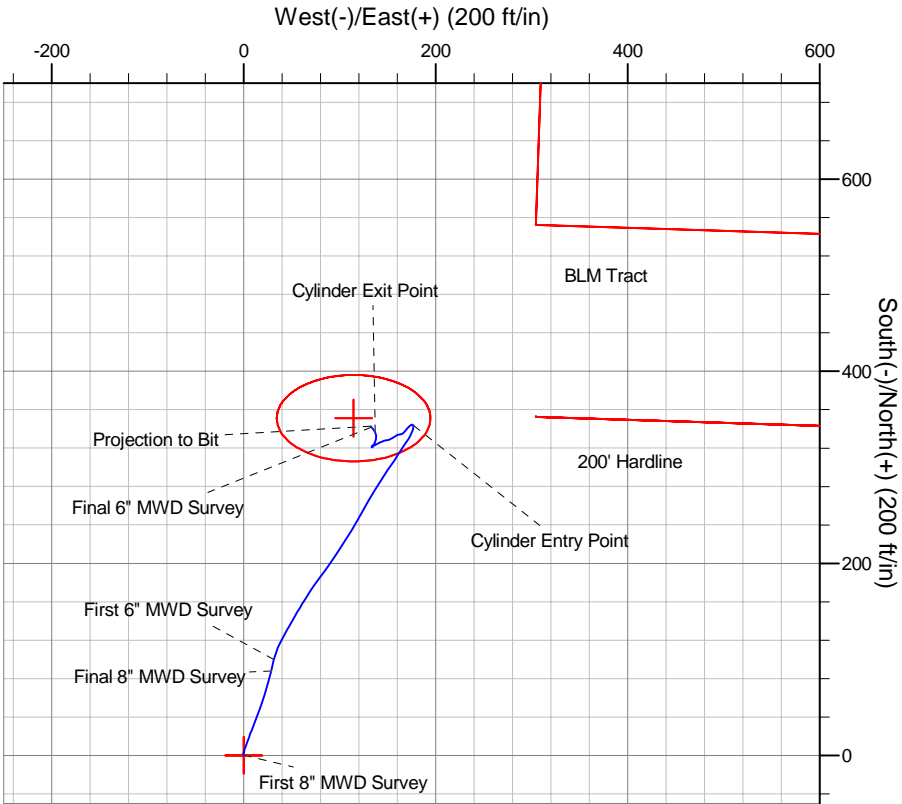
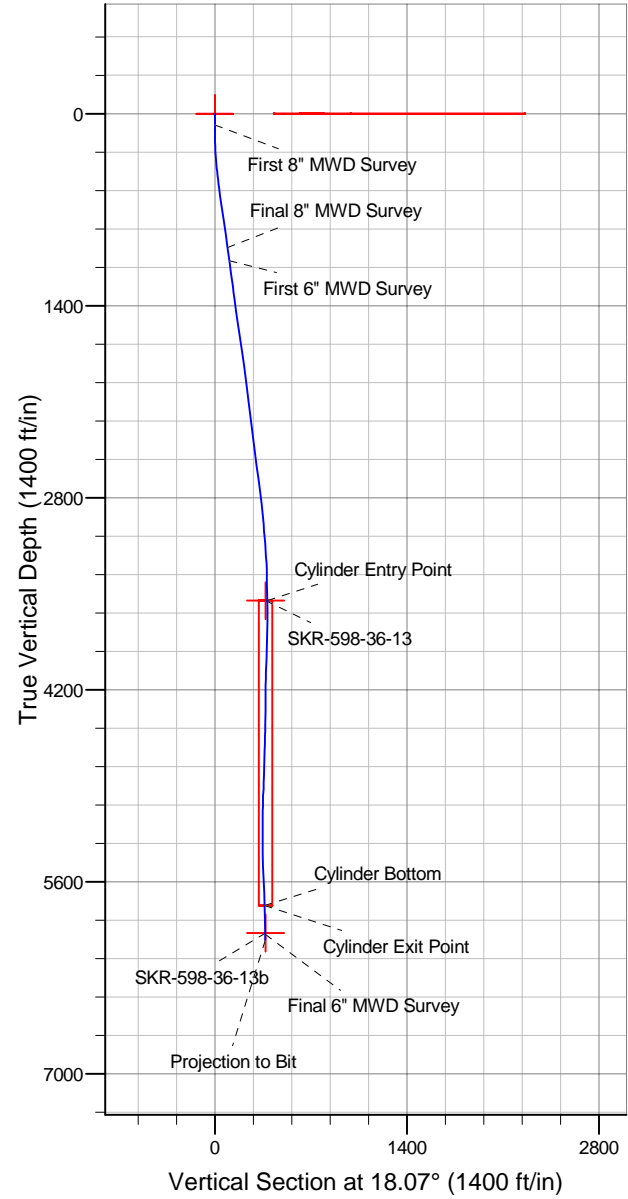


WELL DETAILS: SKR-598-36-BV-01

		Ground Level: 6032.6				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1643889.95	2197610.45	39° 34' 0.304 N	108° 20' 47.971 W	Slot 1

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
200' Hardline	0.0	0.0	0.0	1643889.95	2197610.45	Polygon
BLM Tract	0.0	0.0	0.0	1643889.95	2197610.45	Polygon
SKR-598-36-13	3550.0	351.3	114.6	1644241.20	2197725.05	Ellipse (Radii: L45.0 W80.0)
SKR-598-36-13b	5974.0	351.3	114.6	1644241.20	2197725.05	Point



Design Report for SKR-598-36-BV-01 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
200' Hardline - BLM Tract							
83.0	0.30	19.80	83.0	0.2	0.1	0.2	0.36
First 8" MWD Survey							
114.0	0.40	286.70	114.0	0.3	0.0	0.3	1.65
146.0	0.40	305.20	146.0	0.4	-0.2	0.3	0.40
177.0	0.90	359.00	177.0	0.7	-0.3	0.6	2.38
207.0	1.60	7.70	207.0	1.4	-0.2	1.2	2.41
238.0	2.10	14.00	238.0	2.3	0.0	2.2	1.74
269.0	3.00	14.40	268.9	3.7	0.3	3.6	2.90
300.0	3.70	18.20	299.9	5.4	0.8	5.4	2.37
330.0	4.60	18.50	329.8	7.5	1.5	7.6	3.00
361.0	5.30	19.90	360.7	10.0	2.4	10.2	2.29
392.0	5.80	19.60	391.5	12.8	3.4	13.2	1.62
422.0	6.30	20.50	421.4	15.8	4.5	16.4	1.70
453.0	6.50	20.60	452.2	19.0	5.7	19.9	0.65
484.0	6.90	21.10	483.0	22.4	7.0	23.5	1.30
515.0	7.30	21.40	513.7	26.0	8.4	27.3	1.30
545.0	7.50	21.70	543.5	29.6	9.8	31.1	0.68
607.0	8.10	21.10	604.9	37.4	12.8	39.5	0.98
699.0	8.70	19.00	695.9	50.0	17.4	53.0	0.73
793.0	8.10	17.40	788.9	63.1	21.7	66.7	0.68
888.0	7.80	15.10	883.0	75.7	25.4	79.8	0.46
982.0	7.60	14.20	976.2	87.9	28.6	92.4	0.25
Final 8" MWD Survey							
1,078.0	7.20	13.70	1,071.4	99.9	31.6	104.7	0.42
First 6" MWD Survey							
1,173.0	8.20	22.50	1,165.5	111.9	35.6	117.4	1.62
1,267.0	8.60	29.40	1,258.5	124.2	41.6	131.0	1.15
1,362.0	7.10	31.30	1,352.6	135.4	48.1	143.7	1.60
1,456.0	7.30	27.90	1,445.9	145.7	54.0	155.2	0.50
1,551.0	9.20	32.60	1,539.9	157.4	60.9	168.5	2.12
1,645.0	8.20	30.80	1,632.8	169.5	68.4	182.3	1.10
1,740.0	9.10	37.10	1,726.7	181.3	76.4	196.1	1.37
1,834.0	8.70	36.30	1,819.6	193.0	85.1	209.8	0.45
1,928.0	7.70	34.00	1,912.6	203.9	92.8	222.6	1.12
2,023.0	6.90	32.10	2,006.9	214.0	99.4	234.3	0.88
2,117.0	7.80	34.20	2,100.1	224.1	106.0	245.9	1.00
2,212.0	6.90	31.60	2,194.3	234.3	112.6	257.6	1.01
2,306.0	7.50	27.30	2,287.6	244.5	118.3	269.2	0.86
2,401.0	7.40	31.80	2,381.8	255.3	124.4	281.3	0.62
2,495.0	7.60	28.80	2,475.0	265.8	130.6	293.2	0.47
2,590.0	7.80	32.20	2,569.1	276.8	137.1	305.7	0.52
2,684.0	6.90	31.70	2,662.3	287.0	143.4	317.3	0.96
2,778.0	7.40	34.30	2,755.6	296.8	149.8	328.6	0.63
2,873.0	6.60	34.40	2,849.9	306.4	156.3	339.8	0.84
2,968.0	6.20	31.50	2,944.3	315.2	162.1	350.0	0.54
3,062.0	5.10	34.50	3,037.8	323.0	167.1	358.9	1.21
3,156.0	4.60	35.70	3,131.5	329.5	171.7	366.5	0.54
3,251.0	3.60	18.50	3,226.3	335.4	174.9	373.1	1.66

Design Report for SKR-598-36-BV-01 - Actual Field Surveys

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
3,345.0	1.70	20.20	3,320.1	339.6	176.3	377.5	2.02
3,440.0	1.40	1.90	3,415.1	342.0	176.8	380.0	0.61
3,534.0	0.50	28.10	3,509.1	343.5	177.0	381.5	1.04
3,574.9	0.26	351.42	3,550.0	343.8	177.1	381.8	0.81
Cylinder Entry Point							
3,575.2	0.25	351.00	3,550.3	343.8	177.1	381.8	0.81
SKR-598-36-13							
3,629.0	0.40	270.40	3,604.1	343.9	176.9	381.8	0.81
3,723.0	1.10	297.10	3,698.1	344.3	175.8	381.9	0.81
3,818.0	0.90	231.70	3,793.1	344.3	174.4	381.4	1.15
3,912.0	1.80	228.80	3,887.1	342.9	172.7	379.5	0.96
4,007.0	2.20	220.10	3,982.0	340.5	170.4	376.5	0.53
4,101.0	2.80	219.40	4,075.9	337.3	167.8	372.7	0.64
4,196.0	1.60	243.80	4,170.8	334.9	165.1	369.6	1.58
4,290.0	1.20	266.70	4,264.8	334.3	162.9	368.4	0.72
4,384.0	0.30	291.20	4,358.8	334.3	161.7	368.0	1.00
4,479.0	0.90	249.80	4,453.8	334.2	160.8	367.6	0.74
4,573.0	2.00	236.30	4,547.8	333.0	158.7	365.8	1.22
4,667.0	3.20	236.10	4,641.7	330.6	155.2	362.5	1.28
4,762.0	2.40	257.00	4,736.6	328.7	151.1	359.3	1.35
4,856.0	2.80	258.60	4,830.5	327.8	146.9	357.2	0.43
4,951.0	3.80	241.50	4,925.3	325.8	141.8	353.8	1.47
5,045.0	2.30	243.30	5,019.2	323.5	137.4	350.2	1.60
5,140.0	0.50	321.30	5,114.1	323.0	135.5	349.1	2.37
5,234.0	1.70	235.40	5,208.1	322.5	134.1	348.2	1.85
5,329.0	1.00	137.80	5,303.1	321.1	133.4	346.7	2.19
5,423.0	2.10	27.90	5,397.1	322.0	134.8	347.9	2.78
5,518.0	2.40	23.90	5,492.0	325.4	136.4	351.6	0.36
5,612.0	2.40	14.40	5,585.9	329.1	137.7	355.6	0.42
5,707.0	2.30	357.00	5,680.8	332.9	138.1	359.3	0.76
5,800.2	2.20	332.31	5,774.0	336.4	137.2	362.3	1.04
Cylinder Bottom - Cylinder Exit Point							
5,801.0	2.20	332.10	5,774.8	336.4	137.2	362.3	1.04
5,896.0	1.90	325.30	5,869.7	339.3	135.4	364.6	0.41
6,000.9	1.71	316.18	5,974.6	341.8	133.3	366.3	0.33
SKR-598-36-13b							
6,008.0	1.70	315.50	5,981.7	342.0	133.2	366.4	0.33
Final 6" MWD Survey							
6,055.0	1.70	315.50	6,028.6	343.0	132.2	367.1	0.00
Projection to Bit							

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
83.0	83.0	0.2	0.1	First 8" MWD Survey
982.0	976.2	87.9	28.6	Final 8" MWD Survey
1,078.0	1,071.4	99.9	31.6	First 6" MWD Survey
3,574.9	3,550.0	343.8	177.1	Cylinder Entry Point
5,800.2	5,774.0	336.4	137.2	Cylinder Bottom
5,800.2	5,774.0	336.4	137.2	Cylinder Exit Point
6,008.0	5,981.7	342.0	133.2	Final 6" MWD Survey
6,055.0	6,028.6	343.0	132.2	Projection to Bit

Design Report for SKR-598-36-BV-01 - Actual Field Surveys**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	SKR-598-36-13b	18.07	Slot	0.0	0.0	0.0

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
83.0	982.0	8" EM Surveys	MWD
1,078.0	6,055.0	6" EM Surveys	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
982.0	976.2	8 5/8"	8-5/8	12-1/4

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
BLM Tract	0.00	360.00	0.0	0.0	0.0	1,643,889.95	2,197,610.45	39° 34' 0.304 N	108° 20' 47.971 W
- actual wellpath hits target center									
- Polygon									
Point 1				347.3	1,871.7	1,645,761.65	2,197,957.75		
Point 2				1,669.8	1,832.9	1,645,722.85	2,199,280.25		
Point 3				1,627.3	510.9	1,644,400.85	2,199,237.75		
Point 4				304.3	552.7	1,644,442.65	2,197,914.75		
SKR-598-36-13	0.00	360.00	3,550.0	351.3	114.6	1,644,241.20	2,197,725.05	39° 34' 3.810 N	108° 20' 46.649 W
- actual wellpath misses target center by 62.9ft at 3575.0ft MD (3550.1 TVD, 343.8 N, 177.1 E)									
- Ellipse (radii L45.0 W80.0 on 0.00 azi) - Target Cylinder 100% Intersected									
SKR-598-36-13b	0.00	360.00	5,974.0	351.3	114.6	1,644,241.20	2,197,725.05	39° 34' 3.810 N	108° 20' 46.649 W
- actual wellpath misses target center by 21.0ft at 6000.9ft MD (5974.6 TVD, 341.8 N, 133.3 E)									
- Point									
200' Hardline	0.00	360.00	0.0	0.0	0.0	1,643,889.95	2,197,610.45	39° 34' 0.304 N	108° 20' 47.971 W
- actual wellpath hits target center									
- Polygon									
Point 1				1,627.3	310.9	1,644,200.85	2,199,237.75		
Point 2				304.3	352.7	1,644,242.65	2,197,914.75		